

Appl. No. 10/069,031
Amdt. dated September 9, 2004
Reply to Office Action of June 16, 2004

REMARKS/ARGUMENTS

In the Office Action, claims 40-45 were rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention as mentioned in the Office Action.

Claims 46-66 were rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention as stated in the Office Action.

Claims 40-66 were rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention as mentioned in the Office Action.

Claim 57 was rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention as stated in the Office Action.

Claims 40-47, 49, 50-52, 54, 56-57, 60-63 were rejected under 35 USC 103(a) as unpatentable over Crawley et al (US 5,871,586) in view of Burk (US 5,788,777) on the grounds set forth in the Office Action.

Claims 48, 55, 58-59, 64-66 were rejected under 35 USC 103(a) as unpatentable over Crawley et al in view of Burk as applied to claims 40-47, 49, 50-52, 54, 56-57, 60-63, and further in view of Flynn et al (US 6,447,604) for the reasons stated in the Office Action.

Claim 53 was rejected under 35 USC 103(a) as unpatentable over Crawley et al in view of Burk as applied to claims 40-47, 49, 50-52, 54, 56-57, 60-63, and further in view of Hirata et al (US 4,542,273) on the grounds set forth in the Office Action.

By this response the claims are amended for clarification, thereby to overcome the rejections under 35 USC 112. With respect to the rejections under 35 USC 103, the claims are believed to be distinguishable from the teachings of the cited art in view of the following argument.

The main difference of the method of independent claim 40 and the device of independent claim 46 with respect to Crawley and Burk is the temperature handling of the reaction chamber and the gas inlet. An important feature of the invention is the low (small) temperature gradient perpendicular to the substrate as claimed in claim 44. To achieve this low temperature gradient it is necessary that not only the substrate holder is heated but additionally there is heating of the region of the reactor chamber which lies opposite to the substrate surface. This aspect of the invention is addressed by claim 40 which states that (next to the last paragraph) the flow channel reactor is heated on all sides. Claim 46 specifically states (next to the last paragraph) that a wall region of the reactor chamber which lies opposite to the substrate surface is heatable to high temperature.

Neither Crawley nor Burk show a wall region of a reaction chamber which lies opposite to the substrate surfaces and which is actively heated. Crawley describes the opposite, an actively cooled shower head opposite to the substrate. This arrangement results in a high temperature gradient perpendicular to the substrate surface which is unwanted.

Burk shows a wall region which lies opposite to the substrate surface which is described as ceiling 32. There are no means provided to actively heat this wall region.

It is further essential that the gases which are brought into the reaction chamber do not react or decompose inside the gas inlet. For that reason the gas inlet is to be cooled. Cooling of a gas inlet is shown by Crawley but here the cooling results in a high temperature gradient perpendicular to the substrate surface. As one can see in Figures 1 and 3 the present application and the temperature curve shown in present Figures 2 and 4, there is a high temperature gradient parallel to the substrate surfaces and upstream of the substrates. The temperature is uniform in the chamber in the vicinity of the substrate so as to avoid any significant amount of temperature gradient.


Accordingly this argument is believed to overcome the rejections under 35 USC 103 so as to secure allowance of the claims.

In the event there are further issues remaining in any respect the Examiner is respectfully requested to telephone attorney to reach agreement to expedite issuance of this application.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Since the present claims set forth the present invention patentably and distinctly, and are not taught by the cited art either taken alone or in combination, this amendment is believed to place this case in condition for allowance and the Examiner is respectfully requested to reconsider the matter, enter this amendment, and to allow all of the claims in this case.

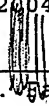
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CERTIFICATE OF MAILING UNDER 37 CFR SECTION 1.8(a)

I hereby certify that the accompanying Amendment is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patent, PO Box 1450 Alexandria, VA 22313-1450, on September 9, 2004.

Dated: September 9, 2004


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